CROP PROTECTION (1983) 2 (4), 515–527

Annual index

Subject index

Agrochemical registration: implications of rising costs, 131

Aldicarb, dimethoate and ethiofencarb: systemic effect on mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot, 211

Allium cepa L. (onion), irrigated: pre-transplant herbicides for weed control in northern Nigeria, 455

Aphid, cereal, control strategies: influence of forecasting, 417

Aphids, cereal (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159

Aphid, spiraea, *see Aphis citricola* van der Goot

Aphis citricola van der Goot (spiraea aphid) colonization is reduced by spraying citrus plants with kaolin suspensions, 371

Aphis citricola van der Goot (spiraea aphid): systemic effect of aldicarb, dimethoate and ethiofencarb on mortality and population dynamics, 211

Aquatic invertebrates and soil nematodes: effects of herbicide in rice paddy fields in Japan, 289

Assessment of insidious pest damage to 26 varieties of seven species of herbage legumes. CLEMENTS, R.O. AND HENDERSON, I.F., 491

Assessment of spray drift in sloping vineyards. GÖHLICH, HORST, 37

Bacillus thuringiensis and chemical insecticide treatments: residual effects on spruce budworm (*Choristoneura fumiferana* Clemens), 225

Biocontrol agent (*Trichoderma harzianum* Rifai aggr.) of seedling disease: field tests in several crops and *Rhizoctonia* root rot of sugar beet, 399

Biological efficacy and deposition of a fungicide applied in charged and uncharged sprays in cereal crops, 305

Biotype concept and its application to insect pests of agriculture. CLARIDGE, M.F. AND DEN HOLLANDER, J., 85

Bird damage to vineyards, eliminated by mist nets, 503

Bird repellency of methiocarb: sensory-cue enhancement, 387

Blister blight disease control in tea: interaction of dosage, spray interval and fungicide action, 27

Botrytis alii Munn, latent: identification in onion bulbs, 243

Brassica oleracea (collard) cropping systems in California: effects of plant diversity on the density and herbivory of the flea beetle, *Phyllotreta cruciferae* Goeze, 497

Calcium peroxide, lime and other seed dressings: effect on winter wheat establishment under wet conditions, 113

Californian collard (*Brassica oleracea*) cropping systems: effects of plant diversity on the density and herbivory of the flea beetle, *Phyllotreta cruciferae* Goeze, 497

California, Salinas Valley: thermal inactivation of *Plasmodiophora brassicae* Woron. and its attempted control by solarization, 325

Carbaryl, lindane and monocrotophos residues on rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.), 361

Carduus thistles: factors influencing the effectiveness of control by

Trichosirocalus horridus (Panzer), 143
Cereal aphid control strategies: influence of forecasting, 417
Cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Cereal crops: deposition and biological efficacy of a fungicide applied in charged and uncharged sprays, 305
Cereal leaf beetle (*Oulema melanopus* (L.)) population densities and winter wheat yields. WEBSTER, J.A. AND SMITH, D.H., JR, 431
Cereal leaf beetles (*Oulema melanopus* (L.)) and cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Charged and uncharged sprays: biological efficacy and deposition in cereal crops, 305
Chemical control of foliar diseases of perennial ryegrass (*Lolium perenne* L.) and their effects on yield and quality of the crop. LAM, ANNIE AND LEWIS, GRAHAM C., 75
Chemical control of scale insects (Homoptera: Coccidae) infesting citrus trees in Egypt. SALAMA, H.S. AND AMIN, A.H., 317
Chemical control of weeds (pre-emergence) in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.) in the southern Guinea savanna of Nigeria, 235
Choristoneura fumiferana Clemens (spruce budworm): residual effects of *Bacillus thuringiensis* and chemical insecticide treatments, 225
Citrullus lanatus Thunb. Mansf. ('Egusi') melon: pre-emergence chemical weed control in the southern Guinea savanna of Nigeria, 235
Citrus plants: sprayed kaolin suspensions reduce colonization by the spiraea aphid (*Aphis citricola* van der Goot), 371
Citrus trees in Egypt: chemical control of scale insect (Homoptera: Coccidae) infestations, 317
Clover, white (*Trifolium repens*), sown with a slot-seeder: effect of three pesticide treatments on establishment, 375
Collard (*Brassica oleracea*) cropping systems in California: effects of plant diversity on the density and herbivory of the flea beetle, *Phyllotreta cruciferae* Goeze, 497
Combined infestation by cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)): effect on their population development and on yield of winter wheat, 159
Common rust (*Puccinia sorghi* Schw.) causing yield and quality losses in sweet corn (*Zea mays*) hybrids, 105
Common rust (*Puccinia sorghi* Schr.) and ranking of partial resistance in 30 sweet corn (*Zea mays*) hybrids, 219
Comparative droplet-size spectra for three different-angled flat fan nozzles. ARNOLD, A.C., 193
Comparison of ULV with conventional spraying on cotton in Pakistan. ATTIQUE, M.R. AND SHAKEEL, M.A., 231
Control, attempted, by solarization, and thermal inactivation of *Plasmodiophora brassicae* Woron. in the Salinas Valley of California, 325
Control, chemical, of foliar diseases of perennial ryegrass (*Lolium perenne* L.) and their effects on yield and quality of the crop, 75
Control, chemical, of scale insects (Homoptera: Coccidae) infesting citrus trees in Egypt, 317
Control, chemical, of weeds (pre-emergence) in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.) in the southern Guinea savanna of Nigeria, 235
Control of cotton insects in the Sudan Gezira: analysis of a crisis, 273
Control, direct, of virus diseases, 259
Control, microbial, of the European skipper, *Thymelicus lineola* Ochs., 353
Control of mouse plagues in irrigated sunflower crops: economic considerations, 153

Control of rice bug, *Leptocorisa oratorius* (Fab.): residues of carbaryl, lindane and monocrotophos on rice, 361
Control, selective, of weeds: use of phytotoxic plant residues, 173
Control strategies for cereal aphids: influence of forecasting, 417
Control techniques for mouse plagues: evaluation in irrigated sunflower crops, 437
Control of weeds, with pre-transplant herbicides, in irrigated onion (*Allium cepa* L.) in northern Nigeria, 455
Costs, rising, of registering agrochemicals: implications, 131
Cotton-insect control in the Sudan Gezira: analysis of a crisis, 273
Cotton-pest management: development in Zimbabwe, 247
Cotton-pest management in Egypt. SALAMA, H.S., 183
Cotton-seed market and commercial gin samples: infection and contamination by *Xanthomonas malvacearum* (E.F. Smith) Dowson in the Northern States of Nigeria, 000
Cotton spraying in Pakistan, conventional compared with ULV, 231
Cyst nematodes, potato: hatching in root diffusates collected from 25 potato cultivars, 97

Degradation rates and residues of herbicides in soil: spatial variability, 17
Deposition and biological efficacy of a fungicide applied in charged and uncharged sprays in cereal crops, 305
Development of cotton-pest management in Zimbabwe. BURGESS, M.W., 247
Dimethoate, ethiocarb and aldicarb: systemic effect on mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot, 211
Direct control of virus diseases. WHITE, R.F. AND ANTONIW, J.F., 259
Disease (blister blight) control in tea: interaction of dosage, spray interval and fungicide action, 27
Diseases, virus: direct control, 259
Dosage, spray interval and fungicide action: interaction in blister blight disease control in tea, 27
Droplet-size spectra, comparative, for three different-angled flat fan nozzles, 193
Dysprosium as a tracer in neutron activation analysis to measure spray drift, 345

Economic considerations of mouse-plague control in irrigated sunflower crops. SAUNDERS, G.R. AND ROBARDS, G.E., 153
Economics of pesticide use in grasslands: some factors, 447
Effect of calcium peroxide, lime and other seed dressings on winter wheat establishment under wet conditions. SLADDIN, M. AND LYNCH, J.M., 113
Effect of combined infestation by cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)) on their population development and on yield of winter wheat. WETZEL, T., REINSCH, B. AND FREIER, B., 159
Effect of three pesticide treatments on the establishment of white clover (*Trifolium repens*) sown with a slot-seeder. CLEMENTS, R.O. AND BENTLEY, B.R., 375
Effects of application of certain herbicides on soil nematodes and aquatic invertebrates in rice paddy fields in Japan. ISHIBASHI, N., KONDO, E. AND ITO, S., 289
Effects of plant diversity on the density and herbivory of the flea beetle, *Phyllotreta crucifera* Goeze, in California collard (*Brassica oleracea*) cropping systems. ALTIERI, MIGUEL A. AND GLIESSMAN, STEPHEN R., 497
Efficacy of insecticides against major insect pests of potatoes in hot climates of Peru. RAMAN, K.V. AND MIDMORE, D.J., 483
'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.): pre-emergence chemical weed control in the southern Guinea savanna of Nigeria, 235
Egypt: chemical control of scale insects (Homoptera: Coccidae) infesting citrus trees, 317

Egypt: management of cotton pests, 183
Establishment of white clover (*Trifolium repens*) sown with a slot-seeder: effect of three pesticide treatments, 375
Esterase inhibition causing pyrethroid synergism in *Spodoptera littoralis* (Boisduval) larvae, 335
Ethiofencarb, aldicarb and dimethoate: systemic effect on mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot, 211
European skipper, *Thymelicus lineola* Ochs.: microbial control, 353
Evaluation of mouse-plague control techniques in irrigated sunflower crops. SAUNDERS, G.R., 437
Exobasidium vexans Massee (blister blight): interaction of dosage, spray interval and fungicide action in disease control in tea, 27

Factors influencing the effectiveness of *Trichosirocalus horridus* (Panzer) in the control of *Carduus thistles*. SIEBURTH, P.J., KOK, L.T. AND LENTNER, M., 143
Field tests of *Trichoderma harzianum* Rifai aggr. as a biocontrol agent of seedling disease in several crops and *Rhizoctonia* root rot of sugar beet. RUPPEL, E.G., BAKER, R., HARMAN, G.E., HUBBARD, J.P., HECKER, R.J. AND CHET, I., 399
Flea beetle, *Phyllotreta cruciferae* Goeze, density and herbivory: effects of plant diversity in California collard (*Brassica oleracea*) cropping systems, 497
Foliar diseases of perennial ryegrass (*Lolium perenne* L.): chemical control, and their effects on yield and quality of the crop, 75
Forecasting: influence on cereal aphid control strategies, 417
Fungicide action, dosage and spray interval: interaction in blister blight disease control in tea, 27
Fungicide applied in charged and uncharged sprays: biological efficacy and deposition in cereal crops, 305
Fusarium–Meloidogyne complex and horizontal resistance in tomato: an artefact of parasitic epistasis, 205

Glyphosate: phytotoxic effect on Norway spruce (*Picea abies* L.) and influence of temperature, 409
Grassland: some factors influencing the economics of pesticide use, 447

Hatching of potato cyst nematodes in root diffusates collected from 25 potato cultivars. EVANS, K., 97
Herbage legumes: assessment of insidious pest damage to 26 varieties of seven species, 491
Herbicide applications: effects on soil nematodes and aquatic invertebrates in rice paddy fields in Japan, 289
Herbicide degradation rates and residues in soil: spatial variability, 17
Herbicides, pre-transplant, for weed control in irrigated onion (*Allium cepa* L.) in northern Nigeria, 455
Horizontal resistance in tomato against the *Meloidogyne–Fusarium* complex: an artefact of parasitic epistasis. SIDHU, G.S. AND WEBSTER, J.M., 205
Hot climates of Peru: efficacy of insecticides against major insect pests of potatoes, 483

Identification of latent *Botrytis allii* Munn in onion bulbs. KRITZMAN, G., 243
Implications of rising costs of registering agrochemicals. SAMUEL, A.C.I., COX, B.W. AND CRAMER, H-H., 131
Infection and contamination of cotton-seed market and commercial gin samples by *Xanthomonas malvacearum* (E.F. Smith) Dowson in the Northern States of Nigeria: a survey, 473
Influence of forecasting on cereal aphid control strategies. WATT, ALLAN D., 417
Influence of temperature on the phytotoxic effect of glyphosate on Norway spruce (*Picea abies* L.). LUND-HØIE, K., 409
Insect control on cotton in the Sudan Gezira: analysis of a crisis, 273
Insecticide, chemical, and *Bacillus thuringiensis* treatments: residual effects on spruce budworm (*Choristoneura fumiferana* Clemens), 225

Insecticide efficacy against major insect pests of potatoes in hot climates of Peru, 483
Insect pests of agriculture: application of the biotype concept, 85
Insect pests in Mediterranean countries: control with pheromones, 3
Insect pests of potatoes in hot climates of Peru: insecticide efficacy, 483
Insects, scale (Homoptera: Coccidae) infesting citrus trees in Egypt: chemical control, 317
Integrated approach to controlling weeds in machine-transplanted lowland rice in Korea. KIM, SOON CHUL, 51
Interaction of dosage, spray interval and fungicide action in blister blight disease control in tea. VENKATA RAM, C.S. AND CHANDRA MOULI, B., 27
Invertebrates, aquatic, and soil nematodes: effects of herbicides in rice paddy fields in Japan, 289

Japanese rice paddy fields: effects of herbicides on soil nematodes and aquatic invertebrates, 289

Kaolin suspensions sprayed on to citrus plants reduce colonization by the spiraea aphid (*Aphis citricola* van der Goot), 371
Korea: an integrated approach to weed control in machine-transplanted lowland rice, 51

Legumes, herbage: assessment of insidious pest damage to 26 varieties of seven species, 491
Leptocorisa oratorius (Fab.), rice bug control: residues of carbaryl, lindane and monocrotophos on rice, 361
Lime, calcium peroxide and other seed dressings: effect on winter wheat establishment under wet conditions, 113
Lindane, carbaryl and monocrotophos residues on rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.), 361
Lolium perenne L. (perennial ryegrass), foliar diseases: chemical control, and their effects on yield and quality of the crop, 75
Losses, yield and quality, caused by common rust (*Puccinia sorghi* Schw.) in sweet corn (*Zea mays*) hybrids, 105

Machine transplanted lowland rice in Korea: an integrated approach to weed control, 51
Macrosiphum avenae (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.) (cereal aphids) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Mediterranean countries: pheromones for the control of insect pests, 3
Meloidogyne–Fusarium complex and horizontal resistance in tomato: an artefact of parasitic epistasis, 205
Melon, 'Egusi' (*Citrullus lanatus* Thunb. Mansf.): pre-emergence chemical weed control in the southern Guinea savanna of Nigeria, 235
Methiocarb bird-repellency: sensory-cue enhancement, 387
Microbial control of the European skipper, *Thymelicus lineola* Ochs. SMIRNOFF, W.A., 353
Mist nets as a means of eliminating bird damage to vineyards. PLESSER, H., OMASI, S. AND YOM-TOV, Y., 503
Monitoring system for the pine beauty moth, *Panolis flammea* (Denis & Schiffermüller): optimization using sex attractants, 63
Monocrotophos, carbaryl and lindane residues on rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.), 361
Mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot: systemic effect of aldicarb, dimethoate and ethiofencarb, 211
Moths, phycitid: pest management by pheromone traps, 463
Mouse-plague control in irrigated sunflower crops: economic considerations, 153
Mouse-plague control techniques: evaluation in irrigated sunflower crops, 437

Nematodes, potato cyst: hatching in root diffusates collected from 25 potato cultivars, 97
Nematodes, soil, and aquatic invertebrates: effects of herbicides in rice paddy fields in Japan, 289
Nets, mist, as a means of eliminating bird damage to vineyards, 503
Neutron activation analysis using dysprosium as a tracer to measure spray drift. DOBSON, CATHERINE M., MINSKI, MARGARET J. AND MATTHEWS, G.H., 345
Nigeria, northern: pre-transplant herbicides for weed control in irrigated onion (*Allium cepa* L.), 455
Nigeria, Northern States: infection and contamination of cotton-seed market and commercial gin samples by *Xanthomonas malvacearum* (E.F. Smith) Dowson, 473
Nigeria, southern Guinea savanna: pre-emergence chemical weed control in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.), 235
Norway spruce (*Picea abies* L.): influence of temperature on the phytotoxic effect of glyphosate, 409
Nozzles, flat fan: comparative droplet size spectra for three with different angles, 193

Onion (*Allium cepa* L.), irrigated: pre-transplant herbicides for weed control in northern Nigeria, 455
Onion bulbs: identification of latent *Botrytis allii* Munn., 243
Optimization of a monitoring system for the pine beauty moth, *Panolis flammea* (Denis & Schiffermüller) using sex attractants. BRADSHAW, J.W.S., BAKER, R., LONGHURST, C., EDWARDS, JUDITH C. AND LISK, JENNIFER C., 63
Oulema melanopus (L.) (cereal leaf beetles), and cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum* padi (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Oulema melanopus (L.) (cereal leaf beetle): population densities and winter wheat yields, 431

Pakistan: comparison of ULV with conventional spraying on cotton, 231
Panolis flammea (Denis & Schiffermüller) (pine beauty moth): optimization of a monitoring system using sex attractants, 63
Parasitic epistasis, *Meloidogyne–Fusarium* complex, and horizontal resistance in tomato, 205
Partial resistance to common rust (*Puccinia sorghi* Schw.): ranking in 30 sweet corn (*Zea mays*) hybrids, 219
Perennial ryegrass (*Lolium perenne* L.) foliar diseases: chemical control, and their effects on yield and quality of the crop, 75
Peru: efficacy of insecticides against major insect pests of potatoes in hot climates, 483
Pest damage to 26 varieties of seven species of herbage legumes, 491
Pesticide treatments: effect of three on the establishment of white clover (*Trifolium repens*) sown with a slot-seeder, 375
Pesticide use in grassland: some factors influencing the economics, 447
Pest management of phycitid moths by pheromone traps, 463
Pests of cotton: development of management in Zimbabwe, 247
Pests of cotton: management in Egypt, 183
Pests, insect, of agriculture: application of the biotype concept, 85
Pests, insect, in Mediterranean countries: control with pheromones, 3
Pests, insect, of potatoes, in hot climates of Peru: insecticide efficacy, 483
Pheromones for the control of insect pests in Mediterranean countries. D.G. CAMPION, 3
Pheromone traps for the pest management of phycitid moths. ŠIFNER, F., ŽĎÁREK, J., HRDÝ, I. AND KALVODA, L., 463
Phycitid moths: pest management by pheromone traps, 463
Phyllotreta cruciferae Goeze (flea beetle) density and herbivory: effects of plant diversity in California collard (*Brassica oleracea*) cropping systems, 497
Phytotoxic effect of glyphosate on Norway

spruce (*Picea abies* L.): influence of temperature, 409
Phytotoxic plant residues: use for selective weed control, 173
Picea abies L. (Norway spruce): influence of temperature on the phytotoxic effect of glyphosate, 409
Pine beauty moth, *Panolis flammea* (Den. & Schiffermüller): optimization of a monitoring system using sex attractants, 63
Plant diversity: effects on the density and herbivory of the flea beetle, *Phyllotreta cruciferae* Goeze, in California collard (*Brassica oleracea*) cropping systems, 497
Plant residues, phytotoxic: use for selective weed control, 173
Plasmodiophora brassicae Woron.: thermal inactivation, and attempted control by solarization in the Salinas Valley of California, 325
Population densities of cereal leaf beetle (*Oulema melanopus* (L.)) and winter wheat yields, 431
Population development of cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)), and yield of winter wheat: effect of combined infestation, 159
Population dynamics and mortality of the spiraea aphid, *Aphis citricola* van der Goot: systemic effect of aldicarb, dimethoate and ethiofencarb, 211
Potato cyst nematodes: hatching in root diffusates collected from 25 potato cultivars, 97
Potatoes in hot climates of Peru: efficacy of insecticides against major insect pests, 483
Pre-emergence chemical weed control in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.) in the southern Guinea savanna of Nigeria. LAGOKE, S.T.O., CHANDRA-SINGH, D.J. AND OLOGUNDE, O.O., 235
Pre-transplant herbicides for weed control in irrigated onion (*Allium cepa* L.) in northern Nigeria. SINHA, T.D. AND LAGOKE, S.T.O., 455
Puccinia sorghi Schw. (common rust) causing yield and quality losses in sweet corn (*Zea mays*) hybrids, 105
Puccinia sorghi Schw. (common rust) and ranking of partial resistance in 30 sweet corn (*Zea mays*) hybrids, 219
Pyrethroid synergism by esterase inhibition in *Spodoptera littoralis* (Boisduval) larvae. ISHAAYA, ISAAC, ASCHER, K.R. SIMON AND CASIDA, JOHN E., 335

Quality and yield losses caused by common rust (*Puccinia sorghi* Schw.) in sweet corn (*Zea mays*) hybrids, 105
Quality and yield of perennial ryegrass (*Lolium perenne* L.) crops: effect of foliar diseases, and their chemical control, 75

Ranking of partial resistance to common rust (*Puccinia sorghi* Schw.) in 30 sweet corn (*Zea mays*) hybrids. GROTH, J.V., DAVIS, D.W., ZEYEN, R.J. AND MOGEN, B.D., 219
Registration of agrochemicals: implications of rising costs, 131
Residual effects of *Bacillus thuringiensis* and chemical insecticide treatments on spruce budworm (*Choristoneura fumiferana* Clemens). SMIRNOFF, W.A., 225
Residues of carbaryl, lindane and monocrotophos on rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.). ARGENTE, A.M. AND HEINRICHS, E.A., 361
Residues and degradation rates of herbicides in soil: spatial variability, 17
Residues, plant, phytotoxic: use for selective weed control, 173
Resistance, horizontal, in tomato against the *Meloidogyne–Fusarium* complex: an artefact of parasitic epistasis, 205
Resistance, partial, to common rust (*Puccinia sorghi* Schw.): ranking in 30 sweet corn (*Zea mays*) hybrids, 219
Rhizoctonia root rot of sugar beet, and seedling disease in several crops: field tests of *Trichoderma harzianum* Rifai aggr. as a biocontrol agent, 399
Rhopalosiphum padi (L.) and *Macrosiphum avenae* (Fabr.) (*Sitobion avenae*)

(cereal aphids) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Rice, lowland, machine-transplanted in Korea: an integrated approach to weed control, 51
Rice paddy fields in Japan: effects of herbicides on soil nematodes and aquatic invertebrates, 289
Rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.): residues of carbaryl, lindane and monocrotophos, 361
Root diffusates from 25 potato cultivars: hatching of potato cyst nematodes, 97
Rust, common (*Puccinia sorghi* Schw.) and ranking of partial resistance in 30 sweet corn (*Zea mays*) hybrids, 219
Rust, common (*Puccinia sorghi* Schw.) causing yield and quality losses in sweet corn (*Zea mays*) hybrids, 105

Scale insects (Homoptera: Coccidae) infesting citrus trees in Egypt: chemical control, 317
Seed dressings, including calcium peroxide and lime: effect on winter wheat establishment under wet conditions, 113
Seedling disease in several crops, and *Rhizoctonia* root rot of sugar beet: field tests of *Trichoderma harzianum* Rifai aggr. as a biocontrol agent, 399
Sensory-cue enhancement of the bird repellency of methiocarb. BULLARD, ROGER W., BRUGGERS, RICHARD L., KILBURN, STEPHEN R. AND FIEDLER, LYNWOOD A., 387
Sex attractants: optimization of a monitoring system for the pine beauty moth, *Panolis flammea* (Denis & Schiffermüller) using sex attractants, 63
Sitobion avenae (*Macrosiphum avenae* (Fabr.)) and *Rhopalosiphum padi* (L.) (cereal aphids) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation on their population development and on yield of winter wheat, 159
Slot-seeder for sowing white clover (*Trifolium repens*): effect of three pesticide treatments on establishment, 375
Soil nematodes and aquatic invertebrates: effects of herbicides in rice paddy fields in Japan, 289
Soil residues and degradation rates of herbicides: spatial variability, 17
Solarization to control *Plasmodiophora brassicae* Woron. by thermal inactivation in the Salinas Valley of California, 325
Some factors influencing the economics of pesticide use in grassland. BLACKSHAW, R.P., 447
Spatial variability in herbicide degradation rates and residues in soil. WALKER, ALLAN AND BROWN, PAULINE A., 17
Spiraea aphid (*Aphis citricola* van der Goot) colonization is reduced by spraying citrus plants with kaolin suspensions, 371
Spiraea aphid, *Aphis citricola* van der Goot: systemic effect of aldicarb, dimethoate and ethiofencarb on mortality and population dynamics, 211
Spodoptera littoralis (Boisduval) larvae: pyrethroid synergism by esterase inhibition, 335
Spray drift assessment in sloping vineyards, 37
Spray drift measurement: neutron activation analysis using dysprosium as a tracer, 345
Spraying citrus plants with kaolin suspensions reduces colonization by the spiraea aphid (*Aphis citricola* van der Goot). BAR-JOSEPH, M. AND FRENKEL, H., 371
Spraying, conventional, compared with ULV on cotton in Pakistan, 231
Spray interval, dosage, and fungicide action: interaction in blister blight disease control in tea, 27
Sprays, fungicide, charged and uncharged: biological efficacy and deposition in cereal crops, 305
Spruce budworm (*Choristoneura fumiferana* Clemens): residual effects of *Bacillus thuringiensis* and chemical insecticide treatments, 225

Sudan Gezira, cotton-insect control: analysis of a crisis, 273
Sugar beet *Rhizoctonia* root rot, and seedling disease in several crops: field tests of *Trichoderma harzianum* Rifai aggr. as a biocontrol agent, 399
Sunflower crops, irrigated: economic considerations of mouse-plague control, 153
Sunflower crops, irrigated: evaluation of mouse-plague control techniques, 437
Survey of extent of infection and contamination of cotton-seed market and commercial gin samples by *Xanthomonas malvacearum* (E. F. Smith) Dowson in the Northern States of Nigeria. POSWAL, M.A.T. and ERINLE, I.D. 473
Sweet corn (*Zea mays*) hybrids: yield and quality losses caused by common rust (*Puccinia sorghi* Schw.), 105
Sweet corn (*Zea mays*): ranking of partial resistance to common rust (*Puccinia sorghi* Schw.) in 30 hybrids, 219
Systemic effect of aldicarb, dimethoate and ethiofencarb on mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot. NEUBAUER, ILAN, RACCAH, BENJAMIN, AHARONSON, NADAV, SWIRSKI, ELIAHU AND ISHAAYA, ISAAC, 211

Tea: blister blight disease control and interaction of dosage, spray interval and fungicide action, 27
Temperature: influence on the phytotoxic effect of glyphosate on Norway spruce (*Picea abies* L.), 409
Thermal inactivation of *Plasmodiophora brassicae* Woron. and its attempted control by solarization in the Salinas Valley of California. MYERS, DONALD F., CAMPBELL, ROBERT N. AND GREATHEAD, ARTHUR S., 325
Thistle, *Carduus*: factors influencing the effectiveness of control by *Trichosirocalus horridus* (Panzer), 143
Thymelicus lineola Ochs. (European skipper): microbial control, 353
Tomato: horizontal resistance against the *Meloidogyne–Fusarium* complex: an artefact of parasitic epistasis, 205
Trichoderma harzianum Rifai aggr. as a biocontrol agent of seedling disease: field tests in several crops and *Rhizoctonia* root rot of sugar beet, 399
Trichosirocalus horridus (Panzer) effectiveness in the control of *Carduus* thistles, 143
Trifolium repens (white clover) sown with a slot-seeder: effect of three pesticide treatments on establishment, 375

ULV compared with conventional spraying on cotton in Pakistan, 231
Use of phytotoxic plant residues for selective weed control. PUTNAM, ALAN R. AND DEFRANK, JOSEPH, 173

Variability, spatial, in herbicide degradation rates and residues in soil, 17
Vineyards: mist nets as a means of eliminating bird damage, 503
Vineyards, sloping: assessment of spray drift, 37
Virus diseases: direct control, 259

Weed control, chemical (pre-emergence) in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf.) in the southern Guinea savanna of Nigeria, 235
Weed control in machine-transplanted lowland rice in Korea: an integrated approach, 51
Weed control, with pre-transplant herbicides, in irrigated onion (*Allium cepa* L.) in northern Nigeria, 455
Weed control, selective: use of phytotoxic plant residues, 173
Wet conditions and winter wheat establishment: effect of calcium peroxide, lime and other seed dressings, 113
Wheat, winter: effect of combined infestation by cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)) on yield and on their population development, 159
Wheat, winter, establishment under wet conditions: effect of calcium peroxide, lime and other seed dressings, 113
Wheat, winter, yields and population densities of cereal leaf beetle (*Oulema melanopus* (L.)), 431

White clover (*Trifolium repens*), sown with a slot-seeder: effect of three pesticide treatments on establishment, 375

Xanthomonas malvacearum (E.F. Smith) Dowson: infection and contamination of cotton-seed market and commercial gin samples in the Northern States of Nigeria, 473

Yield and quality losses caused by common rust (*Puccinia sorghi* Schw.) in sweet corn (*Zea mays*) hybrids. GROTH, J.V., ZEYEN, R.J., DAVIS, D.W. AND CHRIST, B.J., 105

Yield and quality of perennial ryegrass (*Lolium perenne* L.) crops: effect of foliar diseases, and their chemical control, 75

Yield of winter wheat, and population of cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)): effect of combined infestation, 159

Yields of winter wheat, and population densities of cereal leaf beetle (*Oulema melanopus* (L.)), 431

Zea mays (sweet corn) hybrids: yield and quality losses caused by common rust (*Puccinia sorghi* Schw.), 105

Zea mays (sweet corn): ranking of partial resistance to common rust (*Puccinia sorghi* Schw.) in 30 hybrids, 219

Zimbabwe: development of cotton-pest management, 247

Author index

AHARONSON, NADAV, *see* NEUBAUER, ILAN *et al.*

ALTIERI, MIGUEL A. AND GLIESSMAN, STEPHEN R.: Effects of plant diversity on the density and herbivory of the flea beetle, *Phyllotreta cruciferae* Goeze in California collard (*Brassica oleracea*) cropping systems, 497

AMIN, A.H., *see* SALAMA, H.S. AND AMIN, A.H.

ANTONIW, J.F. *see* WHITE, R.F. AND ANTONIW, J.F.

ARGENTE, A.M. AND HEINRICHS, E.A.: Residues of carbaryl, lindane and monocrotophos on rice treated for control of rice bug, *Leptocorisa oratorius* (Fab.), 361

ARNOLD, A.C.: Comparative droplet-size spectra for three different-angled flat fan nozzles, 193

ASCHER, K.R. SIMON, *see* ISHAAYA, ISAAC *et al.*

ATTIQUE, M.R. AND SHAKEEL, M.A.: Comparison of ULV with conventional spraying on cotton in Pakistan, 231

BAKER, R., *see* BRADSHAW, J.W.S. *et al. and* RUPPEL, E.G. *et al.*

BAR-JOSEPH, M. AND FRENKEL, H.: Spraying citrus plants with kaolin suspensions reduces colonization by the spiraea aphid (*Aphis citricola* van der Goot), 371

BENTLEY, B.R., *see* CLEMENTS, R.O. AND BENTLEY, B.R.

BLACKSHAW, R.P.: Some factors influencing the economics of pesticide use in grassland, 447

BRADSHAW, J.W.S., BAKER, R., LONGHURST, C., EDWARDS, JUDITH C. AND LISK, JENNIFER C.: Optimization of a monitoring system for the pine beauty moth, *Panolis flammea* (Denis & Schiffermüller), using sex attractants, 63

BROWN, PAULINE A., *see* WALKER, ALLAN AND BROWN, PAULINE A.

BRUGGERS, RICHARD L., *see* BULLARD, ROGER W. *et al.*

BULLARD, ROGER W., BRUGGERS, RICHARD L., KILBURN, STEPHEN R. AND FIEDLER, LYNWOOD A.: Sensory-cue enhancement of the bird repellency of methiocarb, 387

BURGESS, M.W.: Development of cotton-pest management in Zimbabwe, 247

CAMPBELL, ROBERT N., *see* MYERS, DONALD F. *et al.*
CAMPION, D.G.: Pheromones for the control of insect pests in Mediterranean countries, 3
CASIDA, JOHN E., *see* ISHAAYA, ISAAC *et al.*
CHANDRA MOULI, B., *see* VENKATA RAM, C.S. AND CHANDRA MOULI, B.
CHANDRA-SINGH, D.J., *see* LAGOKE, S.T.O. *et al.*
CHET, I., *see* RUPPEL, E.G. *et al.*
CHRIST, B.J., *see* GROTH, J.V. *et al.*
CLARIDGE, M.F. AND DEN HOLLANDER, J.: The biotype concept and its application to insect pests of agriculture, 85
CLEMENTS, R.O. AND BENTLEY, B.R.: Effect of three pesticide treatments on the establishment of white clover (*Trifolium repens*) sown with a slot-seeder, 375
CLEMENTS, R.O. AND HENDERSON, I.F.: Assessment of insidious pest damage to 26 varieties of seven species of herbage legumes, 491
COOKE, B.K., *see* HISLOP, E.C. *et al.*
COX, B.W., *see* SAMUEL, A.C.I. *et al.*
CRAMER, H-H., *see* SAMUEL, A.C.I. *et al.*

DAVIS, D.W., *see* GROTH, J.V., DAVIS, D.W. *et al. and* GROTH, J.V., ZEYEN, R.J. *et al.*
DEFRANK, JOSEPH, *see* PUTNAM, ALAN R. AND DEFRANK, JOSEPH.
DEN HOLLANDER, J. *see* CLARIDGE, M.F. AND DEN HOLLANDER, J.
DOBSON, CATHERINE M., MINSKI, MARGARET J. AND MATTHEWS, G.A.: Neutron activation analysis using dysprosium as a tracer to measure spray drift, 345

EDWARDS, JUDITH C., *see* BRADSHAW, J.W.S. *et al.*
ERINLE, I.D. *see* POSWAL, M.A.T. AND ERINLE, I.D.
EVANS, K.: Hatching of potato cyst nematodes in root diffusates collected from 25 potato cultivars, 97
EVELEENS, K.G.: Cotton-insect control in the Sudan Gezira: analysis of a crisis, 273

FIEDLER, LYNWOOD A., *see* BULLARD, ROGER W. *et al.*
FREIER, B., *see* WETZEL, T. *et al.*
FRENKEL, H., *see* BAR-JOSEPH, M. AND FRENKEL, H.

GLIESSMAN, STEPHEN R., *see* ALTIERI, MIGUEL A. AND GLIESSMAN, STEPHEN R.
GÖHLICH, HORST: Assessment of spray drift in sloping vineyards, 37
GREATHEAD, ARTHUR S., *see* MYERS, DONALD F. *et al.*
GROTH, J.V., DAVIS, D.W., ZEYEN, R.J. AND MOGEN, B.D.: Ranking of partial resistance to common rust (*Puccinia sorghi* Schw.) in 30 sweet corn (*Zea mays*) hybrids, 219
GROTH, J.V., ZEYEN, R.J., DAVIS, D.W. AND CHRIST, B.J.: Yield and quality losses caused by common rust (*Puccinia sorghi* Schw.) in sweet corn. (*Zea mays*) hybrids, 105

HARMAN, G.E., *see* RUPPEL, E.G. *et al.*
HARMAN, J.M.P., *see* HISLOP, E.C. *et al.*
HECKER, R.J., *see* RUPPEL, E.G. *et al.*
HEINRICHS, E.A., *see* ARGENTE, A.M. AND HEINRICHS, E.A.
HENDERSON, I.F., *see* CLEMENTS, R.O.
HISLOP, E.C., COOKE, B.K. AND HARMAN, J.M.P.: Deposition and biological efficacy of a fungicide applied in charged and uncharged sprays in cereal crops, 305
HRDÝ, I., *see* ŠIFNER, F. *et al.*
HUBBARD, J.P., *see* RUPPEL, E.G. *et al.*

ISHAAYA, ISAAC, *see* NEUBAUER, ILAN *et al. and* ISHAAYA, ISAAC, ASCHER, K.R. SIMON AND CASIDA, JOHN E.: Pyrethroid synergism by esterase inhibition in *Spodoptera littoralis* (Boisduval) larvae, 335
ISHIBASHI, N., KONDO, E. AND ITO, S.: Effects of application of certain herbicides on soil nematodes and aquatic invertebrates in rice paddy fields in Japan, 289
ITO, S., *see* ISHIBASHI, N. *et al.*

KALVODA, L., *see* ŠIFNER, F. *et al.*
KILBURN, STEPHEN R., *see* BULLARD, ROGER W. *et al.*
KIM, SOON CHUL: An integrated approach to controlling weeds in machine-transplanted lowland rice in Korea, 51
KOK, L.T., *see* SIEBURTH, P.J. *et al.*
KONDO, E., *see* ISHIBASHI, N. *et al.*
KRITZMAN, G.: Identification of latent *Botrytis alii* Munn in onion bulbs, 243

LAGOKE, S.T.O. *see* SINHA, T.D. AND LAGOKE, S.T.O. *and* LAGOKE, S.T.O., CHANDRA-SINGH, D.J. AND OLOGUNDE, O.O.: Pre-emergence chemical weed control in 'Egusi' melon (*Citrullus lanatus* Thunb. Mansf) in the southern Guinea savanna of Nigeria, 235
LAM, ANNIE AND LEWIS, GRAHAM C.: Chemical control of foliar diseases of perennial ryegrass (*Lolium perenne* L.) and their effects on yield and quality of the crop, 75
LENTNER, M., *see* SIEBURTH, P.J. *et al.*
LEWIS, GRAHAM C. *see* LAM, ANNIE AND LEWIS, GRAHAM C.
LISK, JENNIFER C., *see* BRADSHAW, J.W.S. *et al.*
LONGHURST, C., *see* BRADSHAW, J.W.S. *et al.*
LUND-HØIE, K.: Influence of temperature on the phytotoxic effect of glyphosate on Norway spruce (*Picea abies* L.), 409
LYNCH, J.M., *see* SLADDIN, M. AND LYNCH, J.M.

MATTHEWS, G.A., *see* DOBSON, CATHERINE, M. *et al.*
MIDMORE, D.J., *see* RAMAN, K.V. AND MIDMORE, D.J.
MINSKI, MARGARET J., *see* DOBSON, CATHERINE M. *et al.*
MOGEN, B.D. *see* GROTH, J.V., DAVIS, D.W. *et al.*
MYERS, DONALD F., CAMPBELL, ROBERT N. AND GREATHEAD, ARTHUR, S.: Thermal inactivation of *Plasmodiophora brassicae* Woron. and its attempted control by solarization in the Salinas Valley of California, 325

NEUBAUER, ILAN, RACCAH, BENJAMIN, AHARONSON, NADAV, SWIRSKI, ELIAHU AND ISHAAYA, ISAAC: Systemic effect of aldicarb, dimethoate and ethiofencarb on mortality and population dynamics of the spiraea aphid, *Aphis citricola* van der Goot, 211

OLOGUNDE, O.O., *see* LAGOKE, S.T.O. *et al.*
OMASI, S., *see* PLESSER, H. *et al.*

PLESSER, H., OMASI, S. AND YOM-TOV, Y.: Mist nets as a means of eliminating bird damage to vineyards, 503
POSWAL, M.A.T. AND ERINLE, I.D.: Infection and contamination of cotton-seed market and commercial gin samples by *Xanthomonas malvacearum* (E.F. Smith) Dowson in the Northern States of Nigeria, 473
PUTNAM, ALAN R. AND DEFRANK, JOSEPH.: Use of phytotoxic plant residues for selective weed control, 173

RACCAH, BENJAMIN, *see* NEUBAUER, ILAN *et al.*
RAMAN, K.V. AND MIDMORE, D.J.: Efficacy of insecticides against major insect pests of potatoes in hot climates of Peru, 483
REINSCH, B., *see* WETZEL, T. *et al.*
ROBARDS, G.E., *see* SAUNDERS, G.R. AND ROBARDS, G.E.
RUPPEL, E.G., BAKER, R., HARMAN, G.E., HUBBARD, J.P., HECKER, R.J. AND CHET, I.: Field tests of *Trichoderma harzianum* Rifai aggr. as a biocontrol agent of seedling disease in several crops and *Rhizoctonia* root rot of sugar beet, 399

SALAMA, H.S.: Cotton-pest management in Egypt, 183; *and* SALAMA, H.S. AND AMIN, A.H.: Chemical control of scale insects (Homoptera: Coccidae) infesting citrus trees in Egypt, 317
SAMUEL, A.C.I., COX, B.W. AND CRAMER, H-H.: Implications of rising costs of registering agrochemicals, 131
SAUNDERS, G.R.: Evaluation of mouse-plague control techniques in irrigated sunflower crops, 437; *and* SAUNDERS, G.R. AND ROBARDS, G.E.:

Economic considerations of mouse-plague control in irrigated sunflower crops, 153

SHAKEEL, M.A., *see* ATTIQUE, M.R. AND SHAKEEL, M.A.

SIDHU, G.S. AND WEBSTER, J.M.: Horizontal resistance in tomato against the *Meloidogyne–Fusarium* complex: an artefact of parasitic epistasis, 205

SIEBURTH, P.J., KOK, L.T. AND LENTNER, M.: Factors influencing the effectiveness of *Trichosirocalus horridus* (Panzer) in the control of *Carduus* thistles, 143

ŠIFNER, F., ŽĎÁREK, J., HRDÝ, I. AND KALVODA, L.: Pheromone traps for the pest management of phycitid moths, 463

SINHA, T.D. AND LAGOKE, S.T.O.: Pre-transplant herbicides for weed control in irrigated onion (*Allium cepa* L.) in northern Nigeria, 455

SLADDIN, M. AND LYNCH, J.M.: Effects of calcium peroxide, lime and other seed dressings on winter wheat establishment under wet conditions, 113

SMIRNOFF, W.A.: Residual effects of *Bacillus thuringiensis* and chemical insecticide treatments on spruce budworm (*Choristoneura fumiferana* Clemens), 225; *and* Microbial control of the European skipper, *Thymelicus lineola* Ochs., 353

SMITH, D.H., JR., *see* WEBSTER, J.A. AND SMITH, D.H., JR.

SWIRSKI, ELIAHU, *see* NEUBAUER, ILAN *et al.*

VENKATA RAM, C.S. AND CHANDRA MOULI, B.: Interaction of dosage, spray interval and fungicide action in blister blight disease control in tea, 27

WALKER, ALLAN AND BROWN, PAULINE A.: Spatial variability in herbicide degradation rates and residues in soil, 17

WATT, ALLAN D.: Influence of forecasting on cereal aphid control strategies, 417

WEBSTER, J.A. AND SMITH, D.H., JR.: Cereal leaf beetle (*Oulema melanopus* (L.)) population densities and winter wheat yields, 431

WEBSTER, J.M. *see* SIDHU, G.S. AND WEBSTER, J.M.

WETZEL, T., REINSCH, B, AND FREIER, B.: The effect of combined infestation by cereal aphids (*Macrosiphum avenae* (Fabr.) (*Sitobion avenae*) and *Rhopalosiphum padi* (L.)) and cereal leaf beetles (*Oulema melanopus* (L.)) on their population development and on yield of winter wheat, 159

WHITE, R.F. AND ANTONIW, J.F.: Direct control of virus diseases, 259

YOM-TOV, Y., *see* PLESSER, H. *et al.*

ŽĎÁREK, J., *see* ŠIFNER, F. *et al.*

ZEYEN, R.J., *see* GROTH, J.V., DAVIS, D.W. *et al. and* GROTH, J.V., ZEYEN, R.J. *et al.*